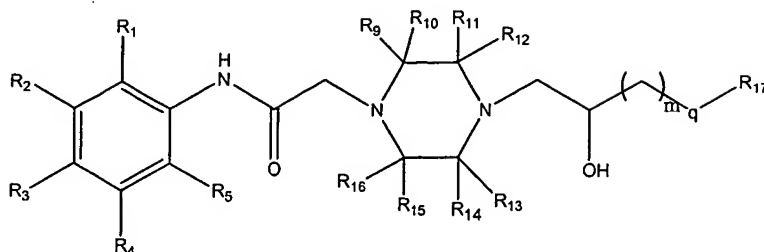


We claim:

1. A substituted piperazine compound of Formula I:



Formula I

wherein:

m is 1, 2, or 3;

q is -NH-, oxygen, or sulfur;

R₁, R₂, R₃, R₄ and R₅ are each independently selected from the group consisting of hydrogen, halo, CF₃, OH, and C₁₋₁₅ straight or branched alkyl;

R₉, R₁₀, R₁₁, R₁₂, R₁₃, R₁₄, R₁₅ and R₁₆ are each independently selected from the group consisting of hydrogen and C₁₋₄ straight or branched alkyl, and

R₁₇ is heteroaryl that is optionally substituted with from 1 to 3 substituents selected from the group consisting of halo, C₁₋₁₅ straight or branched alkyl, aryl, cycloalkyl, and CF₃, wherein the aryl substituents are optionally substituted with 1 substituent selected from the group consisting of methyl, halo and CF₃.

2. The compound of claim 1, wherein m is 1 and q is oxygen;

3. The compound of claim 2, wherein:

R₁, R₃, R₅, R₁₁, R₁₂, R₁₄ are hydrogen or methyl; and

R₂, R₄, R₉, R₁₀, R₁₃, R₁₅ and R₁₆ are hydrogen.

4. The compound of claim 3, wherein R₁ and R₅ are methyl, R₃, R₁₁, R₁₂, and R₁₄ are hydrogen, and R₁₇ is 2-methylbenzothiazol-5-yl, namely (±)-N-(2,6-dimethylphenyl)-2-{4-[2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl] piperazinyl}acetamide, or an enantiomer or diastereoisomer thereof.

5. The compound of claim 3, wherein the enantiomer is 2-{4-[(2S)-2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]piperazinyl}-N-(2,6-dimethylphenyl)acetamide.
6. The compound of claim 3, wherein the enantiomer is 2-{4-[(2R)-2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]piperazinyl}-N-(2,6-dimethylphenyl)acetamide.
7. The compound of claim 3, wherein R₁ and R₅ are methyl, R₃, R₁₁, R₁₂, and R₁₄ are hydrogen, and R₁₇ is 2-cyclohexylbenzothiazol-5-yl, namely 2-{4-[3-(2-cyclohexylbenzothiazol-5-yloxy)-2-hydroxypropyl]piperazinyl}-N-(2,6-dimethylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.
8. The compound of claim 3, wherein R₁ and R₅ are methyl, R₃, R₁₁, R₁₂, and R₁₄ are hydrogen, and R₁₇ is 2-(3-trifluoromethylphenyl)-benzoxazol-5-yl, namely (±)-2-[4-(2-hydroxy-3-{2-[3-(trifluoromethyl)phenyl]-benzoxazol-5-yloxy}propyl)piperazinyl]-N-(2,6-dimethylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.
9. The compound of claim 3, wherein R₁ and R₅ are methyl, R₃, R₁₁, R₁₂ and R₁₄ are hydrogen, and R₁₇ is 2-(2-chlorophenyl)benzoxazol-5-yl, namely (±)-2-[4-{3-[2-(2-chlorophenyl)benzoxazol-5-yloxy]-2-hydroxypropyl}piperazinyl]-N-(2,6-dimethylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.
10. The compound of claim 3, wherein R₁ and R₅ are methyl, R₃, R₁₁, R₁₂ and R₁₄ are hydrogen, and R₁₇ is 2-propylbenzothiazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-propylbenzothiazol-5-yloxy)propyl]piperazinyl}-N-(2,6-dimethylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.
11. The compound of claim 3, wherein R₁ and R₅ are methyl, R₁₂ and R₁₄ represent cis dimethyl, R₃ and R₁₁ are hydrogen, and R₁₇ is 2-methylbenzothiazol-5-yl, namely (±)-

N-(2,6-dimethylphenyl)-2-{4-[2-hydroxy-3- (2-methylbenzothiazole-5-yloxy) propyl]-3,5-cis dimethylpiperazinyl} acetamide, or an enantiomer or diastereoisomer thereof.

12. The compound of claim 11, wherein the diastereoisomer is N-(2,6-dimethylphenyl)-2-{4-[(2S)-2-hydroxy-3- (2-methylbenzothiazole-5-yloxy) propyl]-3,5-cis dimethylpiperazinyl} acetamide.

13. The compound of claim 11, wherein the diastereoisomer is N-(2,6-dimethylphenyl)-2-{4-[(2R)-2-hydroxy-3- (2-methylbenzothiazole-5-yloxy) propyl]-3,5-cis dimethylpiperazinyl} acetamide.

14. The compound of claim 3, wherein R₁, R₅ and R₁₂ are methyl, R₃, R₁₁, and R₁₄ are hydrogen, and R₁₇ is 2-(3-fluorophenyl)benzoxazol-5-yl, namely (±)-2-(4-{3-[2-(3-fluorophenyl)benzoxazol-5-yloxy]-2-hydroxypropyl}-3-methylpiperazinyl)-N-(2,6-dimethylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

15. The compound of claim 14, wherein the diastereoisomer is 2-((3R)-4-{(2S){3-[2-(3-fluorophenyl)benzoxazol-5-yloxy]-2-hydroxypropyl}-3-methylpiperazinyl)-N-(2,6-dimethylphenyl)acetamide.

16. The compound of claim 14, wherein the diastereoisomer is 2-((3S)-4-{(2S){3-[2-(3-fluorophenyl)benzoxazol-5-yloxy]-2-hydroxypropyl}-3-methylpiperazinyl)-N-(2,6-dimethylphenyl)acetamide.

17. The compound of claim 14, wherein the diastereoisomer is 2-((3R)-4-{(2R){3-[2-(3-fluorophenyl)benzoxazol-5-yloxy]-2-hydroxypropyl}-3-methylpiperazinyl)-N-(2,6-dimethylphenyl)acetamide.

18. The compound of claim 14, wherein the diastereoisomer is 2-((3S)-4-((2R){3-[2-(3-fluorophenyl)benzoxazol-5-yloxy]-2-hydroxypropyl}-3-methylpiperazinyl)-N-(2,6-dimethylphenyl)acetamide.

19. The compound of claim 3, wherein R₁, R₅ and R₁₂ are methyl, R₃, R₁₁, and R₁₄ are hydrogen, and R₁₇ is 2-methylbenzothiazol-6-yl, namely (±)-2-((3R)-4-[(2S)-2-hydroxy-3-(2-methylbenzothiazol-6-yloxy)propyl]-3-methylpiperazinyl)-N-(2,6-dimethylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

20. The compound of claim 3, wherein R₁, R₅ and R₁₂ are methyl, R₃, R₁₁, and R₁₄ are hydrogen, and R₁₇ is 2-(2-chlorophenyl)benzoxazol-5-yl, namely (±)-2-(4-{3-[2-(2-chlorophenyl)benzoxazol-5-yloxy]-2-hydroxypropyl}-3-methylpiperazinyl)-N-(2,6-dimethylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

21. The compound of claim 3, wherein R₁, R₅ and R₁₂ are methyl, R₃, R₁₁, and R₁₄ are hydrogen, and R₁₇ is 2-methylbenzothiazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]-methylpiperazinyl}-N-(2,6-dimethylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

22. The compound of claim 3, wherein R₁, R₅, R₁₁ and, R₁₂ are methyl, R₃ and R₁₄ are hydrogen, and R₁₇ is 2-methylbenzothiazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]-3,3-dimethylpiperazinyl}-N-(2,6-dimethylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

23. The compound of claim 3, wherein R₃ and R₁₂ are methyl, R₁, R₅, R₁₁, and R₁₄ are hydrogen, and R₁₇ is 2-methylbenzothiazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]3-methylpiperazinyl}-N-(4-methylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

24. The compound of claim 2, wherein R₃ is methyl, R₁, R₅, R₁₁, R₁₂ and R₁₄ are hydrogen, and R₁₇ is 2-methylbenzothiazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-

methylbenzothiazol-5-yloxy)propyl]piperazinyl}-N-(4-methylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

25. The compound of claim 2, wherein:

R₁, R₂, R₃, and R₄ are hydrogen, cyano, trifluoromethyl, or phenyl;

R₅, R₉, R₁₀, R₁₁, R₁₃, R₁₄, R₁₅ and R₁₆ are hydrogen; and

R₁₂ is hydrogen or methyl.

26. The compound of claim 25, wherein R₁, R₂ and R₄ are hydrogen, R₃ is trifluoromethyl, R₁₂ is methyl, and R₁₇ is 2-methylbenzothiazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]-3-methylpiperazinyl}-N-[4-(trifluoromethyl)phenyl]acetamide, or an enantiomer or diastereoisomer thereof.

27. The compound of claim 25, wherein R₁, R₂, R₄ and R₁₂ are hydrogen, R₃ is trifluoromethyl, and R₁₇ is 2-(4-chlorophenyl)benzoxazol-5-yl, namely, (±)-2-(4-{3-[2-(4-chlorophenyl)benzoxazol-5-yloxy]-2-hydroxypropyl}piperazinyl)-N-[4-(trifluoromethyl)phenyl]acetamide, or an enantiomer or diastereoisomer thereof.

28. The compound of claim 25, wherein R₁, R₂, R₄ and R₁₂ are hydrogen, R₃ is cyano, and R₁₇ is 2-methylbenzothiazol-5-yl, namely (±)-2-{4-[(2S)-2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]piperazinyl}-N-(4-cyanophenyl)acetamide, or an enantiomer or diastereoisomer thereof.

29. The compound of claim 25, wherein R₁ is phenyl, R₂, R₃, R₄ and R₁₂ are hydrogen, and R₁₇ is 2-phenylbenzoxazol-5-yl, namely (±)-2-{4-[(2S)-2-hydroxy-3-(2-phenylbenzoxazol-5-yloxy)propyl]piperazinyl}-N-(2-phenylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

30. The compound of claim 25, wherein R₂ is phenyl, R₁, R₃, R₄ and R₁₂ are hydrogen, and R₁₇ is 2-methylbenzothiazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-

methylbenzothiazole-5-yloxy)propyl]piperazinyl}-N-(3-phenylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

31. The compound of claim 25, wherein R₂ is phenyl, R₁, R₂, R₄ and R₁₂ are hydrogen, and R₁₇ is 2-phenylbenzoxazol-5-yl, namely (±)-2-{4-[(2S)-2-hydroxy-3-(2-phenylbenzoxazol-5-yloxy)propyl]piperazinyl}-N-(3-phenylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

32. The compound of claim 25, wherein R₃ is phenyl, R₁, R₂, R₄ and R₁₂ are hydrogen, and R₁₇ is 2-phenylbenzoxazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-phenylbenzoxazol-5-yloxy)propyl]piperazinyl}-N-(4-phenylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

33. The compound of claim 25, wherein R₃ is phenyl, R₁, R₂, R₄ and R₁₂ are hydrogen, and R₁₇ is 2-methylbenzothiazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]piperazinyl}-N-(4-phenylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

34. The compound of claim 2, wherein:

R₁, R₄, R₅, R₉, R₁₀, R₁₁, R₁₂, R₁₃, R₁₄, R₁₅ and R₁₆ are hydrogen; and
R₂ and R₃ are hydrogen or phenoxy optionally substituted with halo.

35. The compound of claim 34, wherein R₃ is phenoxy, R₂ is hydrogen, and R₁₇ is 2-methylbenzothiazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-methylbenzothiazol-yloxy)propyl]piperazinyl}-N-(4-phenoxyphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

36. The compound of claim 34, wherein R₃ is phenoxy, R₂ is hydrogen, and R₁₇ is 2-phenylbenzoxazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-phenylbenzoxazol-5-

yloxy)propyl]piperazinyl}-N-(4-phenoxyphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

37. The compound of claim 34, wherein R₃ is 4-chlorophenoxy, R₂ is hydrogen, and R₁₇ is 2-methylbenzothiazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-methylbenzothiazole-5-yloxy)propyl]piperazinyl}-N-[4-(4-chlorophenoxy)phenyl]acetamide, or an enantiomer or diastereoisomer thereof.

38. The compound of claim 34, wherein R₂ is phenoxy, R₃ is hydrogen, and R₁₇ is 2-phenylbenzoxazol-5-yl, namely (±)-2-{4-[(2S)-2-hydroxy-3-(2-phenylbenzoxazol-5-yloxy)propyl]piperazinyl}-N-(3-phenoxyphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

39. The compound of claim 34, wherein R₂ is phenoxy, R₃ is hydrogen, and R₁₇ is 2-methylbenzothiazol-5-yl, namely (±)-2-{4-[(2S)-2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]piperazinyl}-N-(3-phenoxyphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

40. The compound of claim 2, wherein:

R₁, R₃, R₄, R₉, R₁₀, R₁₁, R₁₂, R₁₃, R₁₄, R₁₅ and R₁₆ are hydrogen;

R₂ is hydroxymethyl; and

R₅ is methyl.

41. The compound of claim 40, wherein R₁₇ is 4-chlorophenylbenzoxazol-5-yl, namely (±)-2-(4-{(2S)-3-[2-(4-chlorophenyl)benzoxazol-5-yloxy]-2-hydroxypropyl}piperazinyl)-N-[2-(hydroxymethyl)-6-methylphenyl]acetamide, or an enantiomer or diastereoisomer thereof

42. The compound of claim 40, wherein R₁₇ is 2- methylbenzothiazol-5-yl, namely (±)-2-{4-[(2S)-2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]piperazinyl}-N-[2-(hydroxymethyl)-6-methylphenyl]acetamide, or an enantiomer or diastereoisomer thereof.
43. A method of treating a disease state in a mammal that is alleviable by treatment with a partial fatty acid oxidation inhibitor, comprising administering to a mammal in need thereof a therapeutically effective dose of a compound of claim 1.
44. The method of claim 43, wherein the disease state is damage to skeletal muscles resulting from trauma or shock, or a cardiovascular disease.
45. The method of claim 43, wherein the cardiovascular disease is atrial arrhythmia, intermittent claudication, ventricular arrhythmia, Prinzmetal's (variant) angina, stable angina, exercise induced angina, congestive heart disease, or myocardial infarction.
46. The method of claim 43, wherein the disease state is diabetes.
47. A pharmaceutical composition comprising at least one pharmaceutically acceptable excipient and a therapeutically effective amount of a compound of claim 1.